Exhibit B

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

1. TITLE	2. IDENTIFICATION NUMBER
Calibration Certificate	DI-QCIC-80798A

3. DESCRIPTION/PURPOSE

3.1 The Calibration Certificate documents the performance of calibration in accordance with contract specifications for acquired equipment.

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
073097	F-AFMETCAL/MLEE		

7. APPLICATION/INTERRELATIONSHIP

7.1 This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement as delineated in the contract.

7.2 This DID is applicable to contracts for equipment requiring certified calibration prior to delivery.

7.3 This DID supersedes DI-QCIC-80798.

8. APPROVAL LIMITATION	8a. APPLICABLE FORMS	9b. AMSC NUMBER
		F7284

10. PREPARATION INSTRUCTIONS

10.1 Format. Contractor format is acceptable.

10.2 Content. The Calibration Certificate shall include:

a. Title, e.g. "Calibration Certificate" or "Calibration Report".

b. Name and address of laboratory, and location where the calibration was carried out, if different from the address of the laboratory.

c. Unique identification of the certificate or report (such as serial number), each page, and total number of pages.

(Continued on Page 2)

11. DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT A: Approved for public release: distribution is unlimited.

Block 10. Preparation Instructions (Continued)

d. Name and address of customer, when appropriate.

e. Description of the item calibrated, including model number and serial number.

f. Condition of the calibration item.

g. Date (s) of performance of calibration, when appropriate.

h. Identification of the calibration procedures used, or description of any non-standard method used.

i. Any deviation from, additions to, or exclusions from the calibration method, and information relevant to a specific calibration, such as environmental conditions.

j. Measurements, examinations, and derived results supported by tables, graphs, sketches, and photographs, as appropriate, and any failures identified.

k. A statement of the estimated uncertainty of the calibration results (See ISO Guide to the Expression of Uncertainty of Measurement).

l. A signature and title, or equivalent identification of the person(s) assuming responsibility for the content of the certification or report, and date of issue.

m. Where relevant, a statement to the effect that the results relate only to the items calibrated.

n. A statement that the certificate or report shall not be reproduced except in full, without the written approval of the laboratory.

o. Special limitations of use.

p. A traceability statement, including a complete description of all standards in the chain of traceability to national standards. NOTE: When the certificate or report contains results of calibrations performed by subcontractors, these results shall be clearly identified.

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188
Exp. Date: Jun 30, 1986

1. TITLE	2. IDENTIFICATION NUMBER
Contractor's Progress, Status and Management Report	DI-MGMT-80227

3 DESCRIPTION/PURPOSE

3.1 The Contractor's Progress, Status and Management Report indicates the progress of work and the status of the program and of the assigned tasks, reports costs, and informs of existing or potential problem areas.

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC REQUIRED	6b. GIDEP REQUIRED
860905	N/SPAWAR		

7. APPLICATION/INTERRELATIONSHIP

7.1 This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement for this data included in the contract.

7.2 This DID may be applied in any contract and during any program phase.

7.3 This DID supersedes DI-A-2090A, DI-A-3025A, UDI-A-22050B, UDI-A-22052A, UDI-A-23960, DI-A-30024, and DI-A-30606. (cont. on page 2)

8. APPROVAL LIMITATION	9a. APPLICABLE FORMS	9b. AMSC NUMBER
		N3947

10. PREPARATION INSTRUCTIONS

10.1 Contract - This data item is generated by the contract which contains a specific and discrete work task to develop this data product.

10.2 Format - This report shall be typewritten on standard size (e.g. 8 1/2" by 11") white paper, and securely stapled. Pages shall be sequentially numbered. All attachments shall be identified and referenced in the text of the report. The report shall be prepared in the contractor's format and shall be legible and suitable for reproduction.

10.3 Content - The report shall include:

a. A front cover sheet which includes the contractor's name and address, the contract number, the nomenclature of the system or program, the date of the report, the period covered by the report, the title of the report, either the serial number of the report or the Contract Data Requirements List (CDRL) sequence number, the security classification, and the name of the issuing Government activity;

b. *Description of the progress made against milestones during the reporting period;*

c. Results, positive or negative, obtained related to previously-identified problem areas, with conclusions and recommendations;

d. Any significant changes to the contractor's organization or method of operation, to the project management network, or to the milestone chart;

e. Problem areas affecting technical or scheduling elements, with background and any recommendations for solutions beyond the scope of the contract;

f. Problem areas affecting cost elements, with background and any recommendations for solutions beyond the scope of the contract;

g. Cost curves showing actual and projected conditions throughout the contract;

h. Any cost incurred for the reporting period and total contractual expenditures as of reporting date;

i. Person-hours expended for the reporting period and cumulatively for the contract;

j. Any trips and significant results; (cont. on page 2)

7. APPLICATION/INTERRELATIONSHIP (Cont'd)

7.4 Paragraphs 10.3.f, 10.3.g, and 10.3.h herein should be tailored on DD Form 1423 when such cost data is already submitted through a sophisticated cost reporting system under the contract.

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10. PREPARATION INSTRUCTIONS (Cont'd)

k. Record of all significant telephone calls and any commitments made by telephone;
l. Summary of Engineering Change Proposal (ECP) status, including identification of proposed ECPs, approved ECPs, and implemented ECPs;
m. Contract schedule status;
n. Plans for activities during the following reporting period;
o. Name and telephone number of preparer of the report;
p. Appendixes for any necessary tables, references, photographs, illustrations, and charts.

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

1. TITLE	2. IDENTIFICATION NUMBER
SPECIAL INSPECTION EQUIPMENT CALIBRATION PROCEDURES	DI-QCIC-81007

3. DESCRIPTION / PURPOSE

3.1 A Special Inspection Equipment Calibration Procedure (CP) describes the requirements and procedures for calibrating special inspection or special test equipment (SIE) as individual pieces of equipment or as a system or group of equipments.

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
890911	DO		

7. APPLICATION / INTERRELATIONSHIP

7.1 This Data Item Description (DID) contains the format and content preparation instructions for CPs resulting from the work task described by 3.6.8 of MIL-T-31000

7.2 This DID is applicable to acquisitions of military systems, equipments, and components that require the use of SIE to achieve the engineering requirements of the item.

'Continued on sheet 2)

APPROVAL LIMITATION	9a. APPLICABLE FORMS	9b. AMSC NUMBER
		D4823

10. PREPARATION INSTRUCTIONS

10.1 Reference documents. The applicable issue of the documents cited herein, including their approval dates and the dates of applicable amendments and revisions, shall be as cited in the contract or purchase order.

10.2 General. CPs shall meet the requirements of MIL-T-31000.

10.3 Content. CPs shall specify each SIE characteristic to be calibrated; the acceptable tolerances for these characteristics; the calibration equipment to be used; the measurement standards to be used; and the applicable parameters, ranges, and accuracies of the measurement standards. CPs shall provide instructions as to how each instrument characteristic or measurement parameter is to be calibrated.

10.4 Format. Each CP will have a cover sheet, a first page, a list of effective pages, and four sections of text.

(Continued on page 2)

DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

Block 7. APPLICATION / INTERRELATIONSHIP (Continued)

7.3 This DID supersedes DI-CMAN-80787.

7.4 This DID is related to DI-DRPR-81004, "Special Inspection Equipment Drawings and Associated Lists"; DI-QCIC-81005, "Special Inspection Equipment Operating Instructions"; DI-QCIC-81006, "Special Inspection Equipment Descriptive Documentation"; and DI-R-7064, "Calibration System Description".

Block 10. PREPARATION INSTRUCTIONS (continued)

10.4.1 Heading and Title. The heading of each CP shall consist of the words "Equipment Calibration Procedure". The title shall be the nomenclature of the SIE to which the CP applies.

10.4.2 Cover sheet. The cover sheet shall contain the heading and title.

10.4.3 First page. The first page of the CP shall contain the heading and title, and the issuance, approval and change record.

10.4.4 Effective pages. The list of effective pages shall identify each active page of the CP by page number and page revision level.

10.5 Sections. The content of the CP shall be specified in sections and subsections numbered and titled as follows:

10.5.1 Section 1. The first section of the CP shall be numbered and identified as: "1. Introduction.".

10.5.1.1 Scope. The first subsection of the Introduction shall be identified as "1.1 Scope". It shall contain a statement that the CP prescribes the requirements for periodic calibration of the unit or system of SIE and identify the equipment by its nomenclature and part number.

10.5.1.2 Applicability. The second subsection of the Introduction shall be identified as "1.2 Applicability". It shall identify the SIE to be calibrated and any conditions which limit the applicability of the procedure.

10.5.1.3 Calibration Interval. The third subsection of the Introduction shall be identified as "1.3 Calibration Interval". It shall the specify the intervals at which the SIE must be calibrated.

10.5.1.4 Pre-calibration requirements. The fourth subsection of the Introduction shall be identified as "1.4 Pre-calibration requirements". It shall identify any requirements that must be met before the calibration procedure is started. Examples of pre-calibration requirements are the separate calibration of commercial equipment which is part of (or supplied with) the SIE to which the CP applies, and calibration of external equipment, such as transfer standards required to perform the calibrations.

10.5.1.5 Authorized Adjustments and Sequence. The fifth subsection of the Introduction shall be identified as "1.5 Authorized Adjustments and Sequences". It shall identify any adjustments that are permitted or prohibited that are not specifically covered in the CP. It shall also identify any restrictions on deviations from the sequence of the operations specified in the CP.

10.5.1.6 Safety precautions. The sixth subsection of the Introduction shall be identified as "1.6 Safety Precautions". It shall identify any preventive measures that must be taken during the calibration procedure to prevent damage or injury to the SIE, calibration personnel, or calibration equipment. This subsection is not a substitute for caution and warning notes that are to be placed in the text coincident with the operations that may pose a hazard to equipment or personnel.

10.5.2 Equipment and Facilities Required. The second section of the CP shall be identified as "2. Equipment and Facilities Required".

10.5.2.1 Major Equipment. The first subsection of Equipment and Facilities Required shall be identified as "2.1 Major Equipment". It shall contain a list of the major items of equipment needed to calibrate the unit or system to which the procedure applies. Examples of these are standard commercial instruments and transfer standards. The SIE to be calibrated and instruments which are part of or supplied with the SIE are not listed in this section.

10.5.2.2 Facilities. The second subsection of Equipment and Facilities Required shall be identified as "2.2 Facilities". It shall contain a list of facilities which are necessary to calibrate the SIE. Examples of facilities are power systems (sources), "clean rooms", and "screen rooms".

10.5.2.3 Miscellaneous. The third subsection of Equipment and Facilities Required shall be identified as "2.3 Miscellaneous". It shall identify any items required to calibrate the SIE that are not covered by 10.5.2.1 or 10.5.2.2 herein. Typical items to be identified are test leads, resistors, test aids, and reference documents.

10.5.3 Initial Conditions. The third section of the CP shall be identified as "3. Initial Conditions". This section shall contain all instructions on all necessary actions which must precede the actual calibration process. Examples of these actions are making preliminary connections, setting controls, and warming up equipment.

10.5.4 Procedure. The fourth section of the CP shall be identified as "4. Procedure". It shall contain instructions covering all of the measurements, adjustments, recording of performance data, and any other operations necessary to complete the calibration procedure. Instructions for constructing calibration curves, charts, patterns and diagrams shall be included when such curves, charts, patterns or diagrams are required for the calibration of the SIE.

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

2. TITLE	1. IDENTIFICATION NUMBER
PRODUCTION INSPECTION EQUIPMENT TEST SYSTEMS ENGINEERING DESIGN DATA	DI-RELI-80261

3. DESCRIPTION/PURPOSE

3.1 Engineering design data provides information pertinent to the design of components, equipment, or software and necessary for the understanding of these items during subsequent test. The data is used for analytical evaluation of the inherent ability of the test systems to attain the required performance.

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
861117	N/FLTAC 3241		

7. APPLICATION/INTERRELATIONSHIP

7.1 This DID contains the format and content preparation instructions for the data product generated by the specific and discrete task requirement as delineated in the contract.

7.2 This DID is applicable to all systems or equipment contracts requiring certification of inspection test equipment.

8. APPROVAL LIMITATION	9a. APPLICABLE FORMS	9b. AMSC NUMBER
		N3997

10. PREPARATION INSTRUCTIONS

10.1 Content and format. The design data shall be in contractor format and shall include:

10.1.1 Interface schematics and block diagrams of all test stations that require certification, indicating the design and equipment to be used.

10.1.2 Detailed drawings, circuit schematics, and specifications required for non-commercial test equipment used in a test system. The schematic diagrams for each test system and items of special electrical test equipment shall disclose the electrical design of the equipment and the electrical interfaces between items of test equipment and unit-under-test.

10.1.3 Items of standard (commercial) electrical test equipment shall be represented in the diagram by appropriately identified blocks and manufacturer's calibration and user's manuals and procedures supplied.

10.1.4 The schematic diagram for each test system shall be suitable in denoting the various circuit configurations required to perform each of the various mandatory tests included in the contractor's prepared test and calibration procedures.

10.1.5 Test programs and test program translations when the test system employs automatic test equipment. The software documentation shall be suitable for analytical evaluation of the inherent ability of the programming to perform all test and calibration requirements with respect to specifications in accordance with contract requirements. The software data shall include the following:

11. DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

Block 10, Preparation Instructions (Continued)

10.1.5.1 Explanation of all special purpose extensions for the program language.

10.1.5.2 Description of programs logic.

10.1.5.3 Detailed flow charts of the logic including definitions and programmer logic flow from which written.

10.1.5.4 Manuals for the system software denoting system performance.

10.1.5.5 Flow charts for each of the various mandatory tests with a detailed explanation of how program accomplishes each test with references to test circuits denoted in the schematics of above.

10.1.5.6 Program parameter data that applies to all test parameters required by specifications including all stimuli, simulations and measured values. A list in columns comparison chart form shall contain the following:

a. Each parameter required per specifications.

b. Parameter tolerances required per specifications.

c. Each parameter controlled or measured in program.

d. Tolerance limits in program for each parameter.

e. Accuracy of each standard used by contractor to calibrate the test and/or measurement network for each parameter.

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

1. TITLE	2. IDENTIFICATION NUMBER
TEST PROCEDURE	DI-NDTI-80603

3. DESCRIPTION / PURPOSE

3.1 The test procedure identifies the step-by-step testing operations to be performed on items under going developmental, qualification, or acceptance testing. It identifies items to be tested, the test equipment and support required, the test conditions to be imposed, the parameters to be measured, and the pass/fail criteria against which the test results

(continued on page 2)

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
880601	G/T2137		

7. APPLICATION / INTERRELATIONSHIP

7.1 This Data Item Description (DID) contains the format and content preparation instructions for the data product generated by the specific and discrete task requirements as delineated in the contract.

7.2 This DID is applicable to contracts requiring tests to be performed for the purpose of developmental or environmental evaluation, acceptance testing, and item qualification testing.

7.3 This DID supersedes DI-T-5248 and DI-T-5301.

8. APPROVAL LIMITATION	9a. APPLICABLE FORMS	9b. AMSC NUMBER
		G4428

10. PREPARATION INSTRUCTIONS

10.1 Format Requirements. The test procedure shall be in the contractor's format on 8 1/2 x 11 inch paper. It shall be bound in such a manner that pages may be removed or inserted without damage or mutilation.

10.2 Content requirements. The test procedure shall contain the following:

10.2.1 Front matter.

10.2.1.1 Cover and title page. The following information shall be included on the cover and title page:

a. Date of issue.
b. Revision date (If applicable).
c. Procedure document identification number.
d. Contract number.
e. Contractor's name and address.
f. Type of procedure, including purpose (e.g., first article test, developmental evaluation, qualification, environmental (specify), acceptance, or other).
g. Identification of the system, subsystem, or equipment to be tested.
h. Security classification (if applicable)

(continued on page 2)

11. DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT A: Approved for public release, distribution is unlimited.

Block 3. DESCRIPTION/PURPOSE

will be measured. The document is a compilation of individual test procedures for related elements of a system, subsystem, or equipment.

Block 10. PREPARATION INSTRUCTIONS (continued)

10.2.1.2 Record of changes. A record of change pages shall be included to provide for tracking of changes to the test procedures.

10.2.1.3 Table of contents. A table of contents is required when more than one test procedure is included in the test procedures document. It shall identify the page location of each procedure number, procedure title, and related equipment nomenclature.

10.2.2 Body of document. For each test procedure, the following information is required:

10.2.2.1 Procedure number. Each procedure shall have an unique number assigned to it.

10.2.2.2 Title of procedure. The title should relate to the purpose of the test.

10.2.2.3 Introduction. The following shall be addressed in the introduction:

10.2.2.3.1 Purpose of test. (As specified in the contract tasking document.)

10.2.2.3.2 System, subsystem, or equipment to be tested. The following identification information shall be provided:

a. Nomenclature
b. Model or part number.
c. Type of test item (prototype, production item, laboratory model, etc.)
d. Applicable specification.

10.2.2.3.3 Test requirements. Includes the following, each related to the prescribing contract requirement paragraph (specification, standard, plan, or work statement).

a. Required tests, and parameters to be measured.
b. Performance requirements, acceptance or compliance limits, and environmental criteria.

10.2.2.3.4 Referenced documents. A list by title, number, date, and source of those documents cited in the test procedure.

Block 10. PREPARATION INSTRUCTIONS

10.2.2.4 Required test equipment. Includes the following for each piece of test equipment required to perform the procedure:

a. Nomenclature.
b. Use of test equipment.
c. Model Number (if applicable).
d. Manufacturer (if mandatory).
e. Accuracy and calibration requirements.
f. Range or spectrum of measurements required.

10.2.2.5 Table of tests. This table lists each test performed under the procedure in the sequence it is to be performed, identified to the procedure paragraph and the related specification/contract requirement.

10.2.2.6 Step-by-step procedure. The following shall be included for each step of the test procedure:

a. Test set-up diagrams, including test equipment connections.
b. Input and output instrumentation points.
c. Test item operating limits and test conditions to be imposed.
d. Performance parameters to be measured.
e. Step-by-step operations to obtain the required data.
f. Caution and safety warnings as appropriate.

10.2.2.7 Data sheets. Data sheets shall be included with the procedure, or be separately attached at the end of all procedures. They shall provide for:

a. Identification of item tested, including model and serial numbers.
b. Recording of test measurements.
c. Identification of required or objective performance values, with tolerances.
d. Identification of applicable procedure paragraph.
e. Date of test.
f. Signature of technician or inspector performing the tests.

10.2.2.8 Support requirements. Any special support requirements would be included in this section, such as:

a. Use of special facilities or test ranges.
b. Personnel requirements (numbers, types, qualifications).
c. Unusual electrical, hydraulic, pneumatic, etc. requirements.
d. Support equipment requirements.

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

1. TITLE	2. IDENTIFICATION NUMBER
Scientific and Technical Reports	DI-MISC-80711A

3. DESCRIPTION/PURPOSE

3.1 Scientific and Technical Reports document and disseminate the precise nature and results of analytical studies, research, development, test and evaluation (RDT&E) on an assigned task(s) to the analytical, scientific, technical and management community. Scientific and Technical Reports, may be definitive for the subject presented, exploratory in nature, or an evaluation of critical subsystem or of technical problems.

4. APPROVAL DATE *(YYYYMMDD)*	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC APPLICABLE	6b. GIDEP APPLICABLE
20000121	L/DD	X	

7. APPLICATION/INTERRELATIONSHIP

7.1 This DID contains the format requirements and preparation instructions for the information product generated by the specific and discrete task requirement as delineated in the contract.

7.2 This DID is applicable to the elements, organization and design of technical publications.

7.3 This DID supersedes UDI-S-23272C, DI-S-4057, DI-S-3591A, and DI-MISC-80711.

7.4 Defense Technical Information Center (DTIC), 8725 John J. Kingman Rd., Ste. 0944, Ft. Belvoir, VA 22060-6218

8. APPROVAL LIMITATION	9a. APPLICABLE FORMS	9b. AMSC NUMBER
	SF 298	L7382

10. PREPARATION INSTRUCTIONS

10.1 Reference document. The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions, shall be as specified in the contract.

10.2 Document format shall be in accordance with ANSI/NISO Z39.18 Scientific and Technical Reports -- Elements, Organization, and Design.

10.3 Document content shall be clearly written, describe accomplishments and other facts adequately with no technical errors, and be acceptable for release. If marked unclassified, unlimited, they should be accompanied by a letter certifying that the documents have been cleared for public release and sale, to include foreign nationals.

11. DISTRIBUTION STATEMENT

Distribution Statement A: Approved for public release; distribution is unlimited.

DATA ITEM DESCRIPTION

Form Approved
OMB No. 0704-0188

2. TITLE	1. IDENTIFICATION NUMBER
Calibration and Measurement Requirements Summary (CMRS)	DI-QCIC-80278A

3. DESCRIPTION/PURPOSE

3.1 This Data Item Description (DID) defines the content and format requirements covered by the task to develop data as specified in 5. of MIL-STD-1839.

3.2 The CMRS details the measurement requirements of the system, subsystem, or equipment; the test, measurement, and diagnostic equipment (TMDE); and the calibration standards and equipment required to assure traceability of all measurements (Continued on Page 2)

4. APPROVAL DATE (YYMMDD)	5. OFFICE OF PRIMARY RESPONSIBILITY (OPR)	6a. DTIC REQUIRED	6b. GIDEP REQUIRED
881028	30		

7. APPLICATION/INTERRELATIONSHIP

7.1 This DID satisfies requirements of DOD Directive 4155.1, paragraphs C.1.2 and E.2.b as implemented by AFR 74-2, AR 750-25, NAVELEX 4355.2, and MCO 4733.1.

7.2 This DID contains the format and content preparation instructions for that data generated under work task as specified in 5. of MIL-STD-1839.

7.3 This DID is applicable to the acquisition of all military systems, subsystems, and equipment. (Continued on Page 2)

8. APPROVAL LIMITATION	8a. APPLICABLE FORMS	8b. AMSC NUMBER
		F8563

9. PREPARATION INSTRUCTIONS

10.1 Reference documents. The applicable issue of the documents cited herein, including their approval dates and dates of any applicable amendments, notices, and revisions, shall be as specified in the contract.

10.2 General. The Calibration and Measurement Requirements Summary (CMRS) shall document in detail the measurement requirements of the system, subsystem, or equipment; the test, measurement, and diagnostic equipment (TMDE); and the calibration standards and equipment required to assure traceability of all measurements to approved national standards. It shall ensure that:

a. All operational system, subsystem, and equipment calibration and measurement requirements are identified and traceable to the National Institute of Standards and Technology (NIST), or other DOD-approved measurement sources.

b. All supporting TMDE identified are adequate to support the operational system, subsystem, and equipment measurement requirements.

c. All supporting TMDE that require calibration are calibrated with calibration and measurement equipment of higher known accuracy.

10.3 Administrative information.

a. Classified information shall not be listed in the CMRS. (Continued on Page 2)

10. DISTRIBUTION STATEMENT

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

3. DESCRIPTION/PURPOSE (Continued)

through the individual military department metrology and calibration programs to approved national standards. The summary identifies and validates the adequacy of TMDE and the need for calibration standards and equipment.

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7. APPLICATION/INTERRELATIONSHIP (Continued)

7.4 The data requires periodic updating to include changes in design, engineering change proposals (ECPs), etc., which affect system measurement requirements or TMDE.

7.5 This DID supersedes DI-QCIC-80278.

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10. PREPARATION INSTRUCTIONS (Continued)

Classified parameters and information shall be addressed in a classified supplement or appendix and that document shall be appropriately controlled.

b. Black and white copy, equivalent 20 pound sulphite bond, minimum size 8 1/2" X 11" shall be used. Final submission shall be typed or machine printed. Electronic media, e.g. magnetic tape or disk, is acceptable when approved by the cognizant contracting officer.

10.4 Content requirements. The CMRS shall be structured as follows:

a. Cover page
b. Revision status
c. Introduction
d. Table of contents
e. List of abbreviations, symbols, and acronyms
f. Table of category II TMDE
g. Table of category III calibration equipment and standards
h. List of manufacturers' code to name
i. Summary data table of contents
j. Summary data

10.4.1 Cover page. The cover page (see Figure 1) shall include descriptive information such as system or program name, contract number, contractor's company name, current CMRS revision, date of submittal, Contract Data Requirements List (CDRL) Number, etc.

10.4.2 Revision status. This section shall be included in the CMRS (see Figure 2). The initial CMRS submittal shall specify "original" on the revision status pages. Subsequent revisions shall be recorded on the cover page, in the revision status section, and on the pages affected by the revision. Other CMRS pages which are not affected by a revision shall not be resubmitted.

10.4.3 Introduction. This section (see Figure 3) contains general information, remarks or other information about the system, equipment or the CMRS which the preparer feels would be beneficial.

10.4.4 Table of contents. This table (see Figure 4) shall reflect the contents and page location numbers of each structural part of the CMRS identified in 10.4 above.

10.4.5 List of abbreviations, symbols, and acronyms. This list (see Figure 5) shall include all abbreviations, symbols, and acronyms used in the CMRS with their meanings. Abbreviations shall be in accordance with MIL-STD-12 where applicable.

10. PREPARATION INSTRUCTIONS (Continued)

10.4.6 Table of category II TMDE. This table shall include an alphanumerical listing of equipment identified in the category II column of the summary data section. *Items of TMDE that are component parts of test stations or other TMDE shall be shown* as an indenture under the overall test station or TMDE. Calibration intervals shall be recommended if they are not already established or if a different interval is recommended other than those established in Air Force TO 33K-1-100, Army TB 43-180, NAVAIR 17-35MTL-1 or Marine Corp TM-10510. The Table (see Figure 6) shall include the following:

a. TMDE model, type or part number.
b. Nomenclature.
c. Commercial and Government Entity (CAGE) (five digits).
d. National Stock Number (NSN), if assigned.
e. Calibration interval in months.
f. Calibration procedure applicable to contracting Military Department.
g. Support Equipment Recommendation Data (SERD) number, if assigned.
h. Maintenance document applicable to contracting Military Department.

10.4.7 Table of category III calibration equipment and standards. This table shall include an alphanumerical listing of equipment identified in the category III column of the summary data section. The table shall include the same type of information described in 10.4.6a through h above.

10.4.8 List of manufacturers code to name. This list (see Figure 7) shall contain the DOD-assigned, five-digit CAGE code (reference DLA Cataloging Handbook H4/H8) and manufacturer's name for each equipment item identified in the CMRS.

10.4.9 Summary data table of contents. This table shall immediately precede the summary data section and shall reference the content number and hardware item for each system, subsystem, and equipment entry shown in the summary data category I column (see Figure 8).

10.4.10 Summary data. This section is an in-line presentation of system, subsystem, and equipment; TMDE; and calibration equipment and standards parameters which require measurement or calibration support (see Figure 9). The summary data are prepared as follows:

a. Category I operational equipment. These columns are for displaying the description, function, operational range or value and accuracy and test interval of the operational system, subsystem, equipment, assembly, module or component that has parameters that require measurement as specified in 5.1.1.3 of MIL-STD-1839.

b. Content number. Each category I hardware entry shall be identified by a sequential locater reference number. Sequential alphanumeric or decimal reference numbers shall be used. When Logistic Support Analysis Record (LSAR) are a contractual requirement the LSA control number shall be used.

c. Function. The category I function which must be measured, tested, verified, checked, adjusted or supplied shall be shown in the description of item column in a logical sequence.

10. PREPARATION INSTRUCTIONS (Continued)

d. In-line presentation. As each category I function and measurement parameter is listed, complete the category II and the category III summary data before proceeding to the next category I hardware measurement parameter. The parameters and tolerances in each line shall be expressed in consistent units of voltage, frequency, power, current, etc., or percentages. Where this is not the case, explain the inconsistency in an appropriate footnote.

e. Category II TMDE. This summary data represents the support TMDE used to measure, test, verify, check, or adjust the category I equipment as specified in 5.3 of MIL-STD-1839. The summary data category II columns shall list the nomenclature and part or model number of the TMDE and its specifications.

f. Peculiar TMDE. Items of TMDE developed specifically to support category I measurement requirements. The first time an item of category II peculiar TMDE is listed in support of a category I measurement parameter, the complete measuring, generating and accuracy capabilities of the peculiar TMDE shall be listed. For subsequent requirements for the same item of category II peculiar TMDE, only those capabilities required to satisfy the category I measurement parameters shall be listed. Complete category III requirements in 10.4.101 below before proceeding to the next category II entry. First time entries for category II peculiar TMDE may be listed in contractor elected format in a separate section of the CMRS.

g. ATE. The first time an item of category II ATE is listed in support of category I measurement requirements, all minimum use specifications of the replaceable TMDE in the ATE shall be listed. First time entries for category II ATE may be listed in contractor elected format in a separate section of the CMRS. For subsequent requirements for the same ATE, only the most stringent of minimum use requirement and the specific replaceable TMDE need be listed in the in-line presentation. Complete category III requirements in 10.4.101 below before proceeding to the next category II entry. Integral items of the ATE used for self testing or ATE calibration shall be identified.

h. Common TMDE. Items of category II common TMDE that do not have DOD approved calibration procedures, technical orders or maintenance technical orders shall be handled like the peculiar TMDE in 10.4.10f above.

i. Category III calibration equipment and standards. This summary data represents the common and peculiar calibration equipment, standards and TMDE used for calibration, testing, troubleshooting or maintenance of category II TMDE as specified in 5.3.2 of MIL-STD-1839. The summary data category III columns shall list the description of the calibration equipment, standards and TMDE, and its specifications or the DOD approved calibration procedure, technical order or maintenance technical order for the category II TMDE. Where no approved method of support exists for the category II TMDE, list all the equipment and parameters required to show measurement traceability in the category III column. For subsequent entries, reference notes may be used where the requirements are duplicated. Where multiple items of calibration equipment and standards are required to accomplish measurement traceability, the overall systematic error shall also be shown.

j. DOD approved calibration procedures. For items of category II TMDE that have an approved method of support, list the applicable military department approved calibration procedure, technical order, or maintenance technical order in the category III column opposite the category II TMDE.

10. PREPARATION INSTRUCTIONS (Continued)

k. Category III peculiar calibration equipment and standards. Items developed specifically to support category II TMDE measurement requirements. This equipment shall first appear in the category III coulum opposite the category II TMDE it is designed to support. It shall also be listed in the category II column so method of support and traceability can be established in the category III column.

10.4.11 Additional information.

a. When two or more identical items of TMDE are required for a specific measurement, it shall be so noted in the applicable category II or III item description column and the Tables of TMDE.

b. Transistor Transistor Logic (TTL) level test requirements shall not be listed in the category I or category II summary data.

c. When category I input torque calibration requirements are listed, the test accuracy ratio (TAR) of the category II torque tool shall not be less than 1:1 and need not be greater than 1:1. The TAR of the category III torque calibration standard shall be 4:1 or better.

d. When category I input stimuli requirements are listed and being supplied by category II TMDE, the test accuracy ratio shall not be less than 1:1 and need not be greater than 1:1, unless conducting pass, fail or fault tolerance test.

10. PREPARATION INSTRUCTIONS (Continued)

Doc. no. _____

Revision _____

Rev. Date _____

CALIBRATION & MEASUREMENT REQUIREMENTS SUMMARY

for the

X Y Z SYSTEM

Contract No. _____

Date _____

Prepared by: _____

(title)

Approved by: _____

(title)

C O M P A N Y N A M E

(address)

FIGURE 1. Cover page sample format

10. PREPARATION INSTRUCTIONS (Continued)

Date: _____
Revision: _____

CMRS Revision Status

Page	Revision	Page	Revision	Page	Revision	Page	Revision
i	B						
ii	Original						
iii	Original						
iv	Original						
v	Original						
vi	Original						
vii	Original						
viii	Original						
ix	Original						
1	Original						
2	Original						
3	Original						
4	Original						
5	A						
6	A						
7	A						
8	A						
9	A						
10	B						
11	B						
12	B						
13	B						
14	B						
15	A						
16	A						
17	A						
18	Original						
19	Original						
20	Original						
21	B						
22	A						
23	Original						
24	Original						

FIGURE 2. Revision status sample format

10. PREPARATION INSTRUCTIONS (Continued)

Date: _____ Page ___

Revision: _____

I N T R O D U C T I O N

for the

X Y Z SYSTEM

CALIBRATION & MEASUREMENTS REQUIREMENTS SUMMARY

(Company Name) submits a Calibration & Measurements Requirements Summary (CMRS) in accordance with the XYZ System contract statement of work and contract data requirements list (CDRL) Item No. AOXXX for data item description for CMRS.

This CMRS identifies the XYZ SYSTEM stimuli and measurement parameters; the common and peculiar Test, Measurement, and Diagnostics Equipment parameters and the measurement parameters of the supporting TMDE. These data are required to assure measurement traceability through the Services base or depot measurement laboratories to the National Institue of Standards and Technology (NIST).

FIGURE 3. Introduction sample format

10. PREPARATION INSTRUCTIONS (Continued)

CALIBRATION & MEASUREMENT REQUIREMENTS SUMMARY

TABLE OF CONTENTS

FIGURE 4. Table of contents sample format

10. PREPARATION INSTRUCTIONS (Continued)

LIST of ABBREVIATIONS, SYMBOLS, and ACRONYMS

AMP	Ampere
A/D	analog to digital
AC	alternating current
ATE	automatic test equipment
BITE	built-in test equipment
CAGE	Commercial and Government Entity
CAL	calibrate
CMRS	Calibration & Measurement Requirements Summary
Co	company
Cont	continued
CPU	central processing unit
CW	continuous wave
dB or DB	decibel
DC	direct current
DEG or Deg	degree
DMM	digital multimeter
DTS	Digital Test Station
GHz	gigahertz
Hz	Hertz
KHz	kilohertz
kV	kilovolts
kW	kilowatts
MAX or max	maximum
MHz	megahertz
MIN or min	minimum
mVDC	millivolts direct current
ns	nanosecond
NO	number
ppm	parts per million
SQ CM	square centimeter
TMDE	Test, Measurement, and Diagnostic Equipment
V	volt
VAC	alternating current volts
VDC	volt direct current
W	watt

FIGURE 5. List of abbreviations, symbols, and acronyms sample format

Date: _____
Revision: _____

Table of Category II TMDE

Model, Type or Part No.	Nomenclature	CAGE	National Stock Number	Cal Int	Calibration Procedure *	SERD NO	Maintenance Document **

* Applicable Military Department calibration procedure number
** Applicable Military Department maintenance TO, manual, etc.

FIGURE 6. Table of category II TMDE sample format

10. PREPARATION INSTRUCTIONS (Continued)

LIST OF MANUFACTURERS CODE TO NAME

Code	Name
324XX	Company Manufacturing Inc.
387XX	Manufacturing Company Inc.
432XX	TMDE Experts Inc.
498XX	Digital Voltmeters Express
523XX	Phase Analysis Corporation
526XX	Ohms All Right Inc.
633XX	Ultra Violight Inc.
678XX	Test Systems Associates
719XX	Diagnostics Inc.
754XX	Power Supplies Unlimitec
786XX	C-Systems Corp.
813XX	Jay Electronics Inc.
869XX	Mega Watts Ltd.
999XX	High Power Designs

FIGURE 7. List of Manufacturers Code to Name Sample Format

10. PREPARATION INSTRUCTIONS (Continued)

SUMMARY DATA TABLE OF CONTENT

Content Number	Description of Item	Page
1.0	Radar System AN/FPS-XXX	14
1.1	Transmitter Assembly PN 5XX6X	14
1.2	Transmitter Assembly High Voltage Power Supply Assembly PN 5XX7X	15
1.3	Receiver Assembly PN 5XX8X	15
1.4	Power Supply Assembly PN 5XX9X	16
2.0	C-XXX Test System	16
2.1	Attitude Director PN CX1	16
3.0	Diagnostics Module PN CXX-3	18
4.0	Laser Range Finder RT PN LRFX	18

FIGURE 6. Summary data table of content sample format

10. PREPARATION INSTRUCTIONS (Continued)

Date: ______
Revision: ______

Sheet ____ of ____
Page ________

CALIBRATION & MEASUREMENT REQUIREMENTS SUMMARY

S U M M A R Y   D A T A

	Category I Operational/System Equipment				Category II Test/Meas & Diagnostic Equipment			Category III Calib Equipment/Standards		
Content No	Description of Item	Operation Range or Value	Operational Tol	Interval	Description of Item	Specific Range or Value	Specific Tolerance	Description of Item	Range or Value	Tolerance
1.0	Radar System AN/FPS-XXX									
1.1	Transmitter Assembly PN 5XX6X			06						
	Output Power (kilowatts)	1 kW	+/-25%		Power Meter Model XXXX with Power Sensor PN XXXX	0 to 3 watts	+/-4%	33K4-4-XX-1 (Air Force Procedure)		
					Directional Coupler Model XX	30 dB (decibel)	+/-2% (0.1 dB)	33K4-4-X-1 (Air Force Procedure)		
					Dummy Load Model XXX	50 ohm	+/-1 ohm	NCR***		
					(overall accuracy +/- 6.25%)					
	Pulse Width (microseconds)	1 uS	+/-0.1 uS		Oscilloscope PN XX-XX	0.2 uS per/div*	+/-3% (.006uS)	17-20WW-222 (Navy Procedure)		
	Spectrum Sidelobes	10 dB down from carrier (minimum)			Spectrum Analyzer PN 2XXX (with coupler and load listed above) (overall accuracy +/-1.2 dB)	+20 dBm to -100 dBm**	+/-1 dB (see note)	17-20GW-19 (Navy Procedure)		

note: Spectrum Analyzer accuracy determined adequate for measurement of operational minimum

* per/division ** decibel milliwatt *** No Calibration Required

FIGURE 9. Summary da[illegible]ple format

10. PREPARATION INSTRUCTIONS (Continued)

Date: ________
Revision: ____

CALIBRATION & MEASUREMENT REQUIREMENTS SUMMARY

Sheet ____ of ____
Page ________

SUMMARY DATA

	Category I Operational/System Equipment				Category II Test/Meas & Diagnostic Equipment			Category III Calib Equipment/Standards		
Content No	Description of Item	Operation Range or Value	Operational Tol	Interval	Description of Item	Specific Range or Value	Specific Tolerance	Description of Item	Range or Value	Tolerance
1.1	(Continued) Frequency (megahertz)	8400 to 9400 MHz	+/-2 MHz		Electronic Counter PN X-XXX	8000 to 9500 MHz	+/-10 Hz	TB9-6625-137-XX (Army Procedure)		
1.2	Transmitter High Voltage Power Supply Assembly PN 5XX7X			12						
	DC Voltage (kilovolts)	10 kV	+/-10%		Digital Voltmeter (volt direct current) PN 0000 with HV Prove HV-X (overall accuracy +/-2.02%)	0-10 VDC 10,000:1	+/-.01% +/-2%	TB9-6625-1429-XX (Army Procedure) *		
	DC Current Limit Level	5 Amp 5 VDC**	+/- 0.1A +/-0.1 VDC		Digital Voltmeter PN 0000	0-10 VDC	+/-.02 VDC	33K3-4-XXX-1 (Air Force Procedure)		
1.3	Receiver Assembly PN 5XX8X			12						
	Frequency	8400 to 9400 MHz	+/-2 MHz		Electronic Counter PN X-XXX	8300 to 9500 MHz	+/-10 Hz	33K3-4-XXXX-1 (Air Force Procedure)		

* Military Department authorized source ** Voltage drop measured across 1 ohm resistor

FIGURE 9. Summary data sample format - Continued

Date: _____ Sheet ____ of ____
Revision: _____ Page _____

CALIBRATION & MEASUREMENT REQUIREMENTS SUMMARY

SUMMARY DATA

Content No	Category I Operational/System Equipment: Description of Item	Operation Range or Value	Operational Tol	Interval	Category II Test/Meas & Diagnostic Equipment: Description of Item	Specific Range or Value	Specific Tolerance	Category III Calib Equipment/Standards: Description of Item	Range or Value	Tolerance
1.3	(Continued) Sensitivity	-80 dBm @8.5 GHz* *minimum*			Signal Generator Model YXX	0 to -100 dBm	+/-1 dB @8.5 GHz (see note)	17-20ACG-11-00XD (Navy Procedure)		
1.4	Power Supply Assembly PN 5XX9X			12						
	AC Volts	6 VAC**	+/-8%		AC Voltmeter Model X-X	10 VAC	+/-2%	17-20VG-0X (Navy Procedure)		
	Output VDC	-440 VDC -80 VDC 5 VDC	+/-4% +/-2% +/-2%		Digital Multimeter PN ZZZZ	500 VDC 100 VDC 10 VDC	+/-1% +/-0.5% +/-0.5%	33K8-4-X-1 (Air Force Procedure)		
2.0	C-XXX Test System									
2.1	Attitude Director PN CX1			12	Automatic Test Station (ATS) AN/USM-5XX					
	Output Regulated Volts AC	340 mVAC	+/-1%		Digital Multimeter PN 9XXX	1 VAC	+/-0.25%	Meter Calibrator PN XOOO Part of PATEC***	2 VAC	+/-0.06%

note: Signal Generator accuracy determined adequate for support of minimum operational requirement

* Gigahertz
** Volts Alternating Current
*** Part of Air Force Portable Automatic Test Equipment Calibrator

Date: _____
Revision: _____

CALIBRATION & MEASUREMENT REQUIREMENTS SUMMARY

Sheet ___ of ___
Page _____

SUMMARY DATA

	Category I Operational/System Equipment				Category II Test/Meas & Diagnostic Equipment			Category III Calib Equipment/Standards		
Content No	Description of Item	Operation Range or Value	Operational Tol	Interval	Description of Item	Specific Range or Value	Specific Tolerance	Description of Item	Range or Value	Tolerance
2.1	(Continued)									
	Resistance	98 ohms	+/-4%		Digital Multimeter PN 9XXX Part of ATS*	0 to 200 ohms	+/-1% of reading	Meter Calibrator PN XOOO Part of PATEC	100 ohms	+/- 0.25%
	Synchro Phase Angle Input 28V, 400 Hz Reference	0 DEG**	+/- 0.08 DEG		Synchro Simulator PN SSXX	0 to 360 DEG	+/-0.02 DEG	Angle Position Indicator PN APIX	0 to 359.9 DEG	+/- 0.005 DEG
	AC Voltage Input Power	115 VAC	+/-4% ***		Power Supply PN PSX Part of ATS*	115 VAC	+/-4%	Digital Multimeter Part of ATS*	200 VAC	+/-1%
		5 VAC (stimuli)	+/-10%		Phase Ref Power Supply PN PRPSX Ratio Transformer Part of ATS*	0 to 10 VAC	+/-2.5%	Meter Calibrator PN XOOO and Phase Angle Voltmeter PN PAVX Part of PATEC	20 VAC	+/- 0.6%
	DC Voltage	-15 to +2.2 VDC (stimuli)	+/-80 mVDC		DC Power Supply PN PSOC Part of ATS*	-16 to +16 VDC	+/-20 mVDC	Digital Multimeter PN 9XXX Part of ATS*	100 VDC	+/-5 mVDC

* Automatic Test Station ** Degrees *** Non-test, TAR= 1:1

FIGURE 9. Summary data sample format - Continued

Date: _____ Sheet ____ of ____
Revision: ____ CALIBRATION & MEASUREMENT REQUIREMENTS SUMMARY Page _____

SUMMARY DATA

Category I Operational/System Equipment					Category II Test/Meas & Diagnostic Equipment			Category III Calib Equipment/Standards		
Content No	Description of Item	Operation Range or Value	Operational Tol	Interval	Description of Item	Specific Range or Value	Specific Tolerance	Description of Item	Range or Value	Tolerance
3.0	Diagnostic Module PN CXX-3			12	Digital Test Station (DTS) PN ABC					
	DC Reference	1.378 VDC	+/- 0.1%		Digital Multimeter PN ZXZX Part of DTS	0-10 VDC	+/-0.025% of reading	TB9-4935-365-XX (Army Procedure)		
	Precision Resistor	1.00 ohm	+/- 0.1%		Digital Multimeter PN ZXZX Part of DTS	0-10 ohm	+/-0.025% of reading	Same as above		
4.0	Laser Range Finder RT* PN LRFX			06						
	Receiver Sensitivity (Nano Watts per Square Centimeter) (nW/cm2)	60 nW/cm2 *minimum*			Laser RT* Test Source PN LRTU	50 nW/cm2	+/-10 nW (see note)	Laser Receiver PN PECULIAR	10 to 100 nW/cm2	+/- 5 nW of *reading* **
					Laser Reciever PN PECULIAR (Peculiar Category III)	10 TO 100 nW/cm2	+/-5 nW of reading	APD Detector PN APDX with Low Level Laser Sys PN LLLSX with Neutral Density Filter PN X	5 to 100 nW/cm2	+/- 2.5 nW of *reading* **

note: Accuracy determined adequate to support minimum operational requirement
* Receiver/Transmitter ** Overall Accuracy, TAR = 2:1 = state-of-art

FIGURE 9. Summary data sa[illegible]ormat - Continued